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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Bryan Prucher Confirmation No. 2750  
Serial No: 10/714,328  
Filed: November 14, 2003  
Group Art Unit: 1725  
Examiner: Maria Alexandra Elve  
Title: METHOD OF MANUFACTURING DISPERSION STRENGTHENED  
COPPER AND/OR HYPER-NUCLEATED METAL MATRIX  
COMPOSITE RESISTANCE WELDING ELECTRODES  
Atty. Docket No.: PBP-111-A

**CERTIFICATE OF MAILING AND COVER SHEET**

MAIL STOP: APPEAL BRIEF - PATENT  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Transmitted herewith is a **Reply to Notice of Non-Compliant Appeal Brief**; Certificate of Mailing and Cover Letter; and a stamped return postcard, deposited with the United States Postal Service as First Class Mail and addressed to: Mail Stop: APPEAL BRIEF - PATENT Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 14<sup>th</sup> day of September, 2006.

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Carol A. Offer



Attorney Reference: PBP-111-A

PATENT

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NUCLEATED METAL MATRIX COMPOSITE  
RESISTANCE WELDING ELECTRODES

**REPLY TO NOTICE OF NON-COMPLIANT APPEAL BRIEF**

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This Reply is in response to an Office communication [PTOL-462] in this proceeding, mailed August 15, 2006. The communication advises that Applicant's Appeal Brief, filed on June 15, 2006, is defective for failure to comply with one or more provisions of 37 CFR 41.37.

**REMARKS / ARGUMENTS**

Boxes 1 and 2 of the communication allege certain deficiencies in the Brief.

Box 1 of the communication advises that the brief does not contain the items required under 37 CFR 41.37(c), or the items under the proper heading or in the proper order.

Applicant's Attorney disagrees. Applicant's Brief specifically includes each of the sections, the items under the headings, and in the required sequence, as required by 41.37(c).

In Applicant's Appeal Brief, the section "(iii) Status of claims" indicated, among other things, certain claims that were cancelled, and that claims 1-3, 5 -11, 13, and 16 -21 are on appeal. However, to advance prosecution, the "status of the claims" section is revised as follows to provide more "specificity" as to the status of the claims in this Appeal:

"(iii) Status of claims

Claims 1 – 21 were originally filed with this application. In a first office action, the Examiner rejected Claims 1 - 21. Thereafter, Claims 4, 12, 14 and 15 were cancelled and Claims 1, 13 and 18 were amended. Claims 2, 3, 5 – 11, 16, 17, and 19 – 21 were not amended. Thereafter, the Examiner rejected Claims 1 -3, 5-11 13 and 16 – 21, all claims pending in the application. Claims 1 – 3, 5 – 11, 13, and 16 – 21 are in this appeal."

Any deficiency of Box 1 is believed obviated.

Box 2 of the communication advises that the brief does not contain a statement of the status of all claims, (e.g., rejected, allowed, withdrawn, objected to, canceled), or does not identify the appealed claims (37 CFR 41.37(c)(1)(iii)).

Applicant's Attorney disagrees. However, the revised "(iii) Status of claims" section is submitted to advance prosecution and obviate any possible deficiency.

Further, the claims in the "(viii) Claims appendix" section filed with the Brief presents all of the claims pending in this appeal but the claims are not prefaced with their status (e.g., prefaced by "original", "amended", "canceled").

Submitted herewith for entry in this Appeal is a replacement section "(viii) Claims appendix". This replacement appendix identifies the status of each claim filed in this application.

## CONCLUSION

By this Reply, including the revised "(iii) Status of claims" section and the attached replacement "(viii) Claims appendix", the Brief is believed to fully respond to the requirements of 37 CFR 41.37, and in particular, to the requirements of 41.37(c)(1), sections (i) through (viii).

Applicant's Attorney respectfully requests that the deficiencies raised by the Examiner in the communication be reversed.

Applicant's Attorney also respectfully repeats his request that the Board not sustain the Examiner's rejection(s) of the claims of this application.

Respectfully submitted,



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Dated: Sept. 14, 2006

Attachment: "(viii) Claims appendix",

(viii) Claims appendix

1. (Amended) A process of manufacturing a resistance welding electrode, comprising the steps of:

compacting a powdered metal material into a desired preform densified compact shape,

sintering the compact shape in an inert atmosphere, and

shaping the resultant sintered powdered metal compact shape into its final net shaped finished electrode form by either cold forming or semi-solid molding.

2. (Original) The product produced by the process of Claim 1.

3. (Original) The process as claimed in Claim 1, wherein said powdered metal material is dispersion strengthened copper and/or a hyper-nucleated metal matrix composite.

4. Canceled

5. (Original) The process as claimed in Claim 3, wherein said powdered metal is alloyed with a minor amount of a non-ferrous powder metal.

6. (Original) The process as claimed in Claim 5, wherein said non-ferrous powder metal is a copper-based welding alloy.

7. (Original) The process as claimed in Claim 6, wherein said copper-based welding alloy is selected from the group consisting of copper-chrome-zirconium, copper-zirconium, and beryllium-copper.

8. (Original) The process is claimed in Claim 1, wherein the step of compacting includes continuously applying a compressive force until a density of at least about 85% of theoretical density is achieved.

9. (Original) The process as claimed in Claim 8, wherein the compressive force is at least about 50,000 psi.

10. (Original) The process as claimed in Claim 1, wherein the step of sintering is carried out at least in part at a temperature of about 1,550°F to about 1,850°F and the inert atmosphere is argon, xenon or hydrogen.

11. (Original) The process as claimed in Claim 9, wherein the step of sintering is carried out for at least about 60 minutes to about 120 minutes.

12. Canceled.

13. (Amended) A method of manufacturing a resistance welding electrode, comprising the steps of:

preparing an amount of metal powder, wherein said metal powder is dispersion strengthened copper and/or a hyper-nucleated metal matrix composite,

compacting and densifying the metal powder into a pre-form having a desired shape, said compacting and densifying producing a pre-form having a density of at least 85% of theoretical density,

sintering the pre-form in an inert atmosphere, and

shaping the resultant sintered metal powder pre-form into a final net shaped finished electrode form by either cold forming or semi-solid molding.

14. Canceled.

15. Canceled.

16. (Original) The method as claimed in Claim 15, wherein the semi-solid molding process comprises thixomolding.

17. (Original) The method as claimed in Claim 13, wherein

said step of preparing an amount of metal powder includes alloying a major amount of said dispersion strengthened copper and hyper-nucleated metal matrix composite with a minor amount of other elemental non-ferrous alloy powders, and

said step of sintering is carried out at a temperature sufficient to alloy said minor and major metals into said pre-form, said sintering temperature being from about 1550°F to about 1,850°F.

18. (Amended) The method as claimed in Claim 17, wherein

said minor amount of other elemental non-ferrous alloy powder is selected from the group consisting of silver and in an amount sufficient to change a desired physical property of the preform, and

said semi-solid molding process comprises thixomolding.

19. (Original) A method of making a resistance welding electrode, comprising:

providing a supply of a suitably prepared metal powder mechanically alloyed with another metal powder to introduce a second phase, compacted and sintered into a billet,

raising the temperature of the billet to a semi-solid state to form a semi-solid slurry of nearly spherical solid particles suspended in a liquid matrix, and feeding the billet into the injection chamber of an injection molding machine, and

injecting the slurry into a preheated mold to make a final net shape or a perform shape for subsequent cold forming.

20. (Original) The method as claimed in Claim 19, wherein said suitably prepared metal powder is dispersion strengthened copper and/or hyper nucleated metal matrix composite.

21. (Original) The method as claimed in Claim 19, wherein the other metal powder being mechanically alloyed for the purpose of introducing a second phase is silver.